

Statewide Standard Treatment Protocols

***Paramedic Standing
Orders, Guidelines, and
Policies 2010***



Effective: November 1, 2010

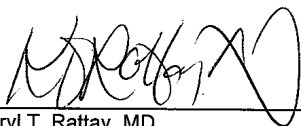
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***State of Delaware
Department of Health and Social Services
Division of Public Health
Office of Emergency Medical Services***

***Statewide Standard Treatment Protocols,
Guidelines, Policies,
and
Paramedic Standing Orders***



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INTRODUCTION

The standing orders of the Statewide Standard Treatment Protocol have been developed for use by paramedics while functioning in the Delaware Paramedic Services System. These Standing Orders replace the previous set and are effective on November 1, 2010. The Standing Orders are specific and should not be open to alteration. However, while many of the common, frequently encountered medical emergencies have been addressed by specific standing order, it is recognized that not all patient presentations are clear-cut, nor will all patients benefit from "recipe" treatment approaches. Standing orders do not replace the need for sound clinical judgment or the need to contact medical control as soon as possible.

Standing orders are not intended to provide definitive treatment, but are intended to stabilize the patient prior to transport to the hospital for definitive treatment. Deviation from standing orders may be undertaken only by direct order from an approved medical control physician serving as Medical Command within an approved facility.

The intent of these orders is two-fold: 1) promotion of statewide standardization of prehospital advanced life support services, and 2) provision of guidelines under which paramedics may initiate life-saving treatments prior to establishing contact with medical control.

The ultimate goal of the Delaware Paramedic System is to deliver viable patients to the hospital, thereby creating a positive impact on health care in Delaware.

PARAMETERS OF PARAMEDIC PRACTICE

Paramedics are not authorized, in the State of Delaware, to function as independent providers of advanced life support services.

Paramedics function as physician extenders and, as such, participate in the practice of medicine. Paramedics may only perform advanced life support procedures when functioning as members of an on-duty Advanced Life Support (ALS) unit. Such a response unit must be from a state approved paramedic service whose paramedics are functioning under the license of the State Emergency Medical Service's Medical Director.

All Delaware certified EMS providers administering patient care are doing so under the provisions of the State EMS Medical Director's license and in accordance with Delaware Code Title 16 chapter 98 paragraph 9802(22).

The prehospital provision of ALS services by a paramedic in any other situation constitutes the unlawful practice of medicine.

These situations include but are not limited to: performing ALS skills while serving on Basic Life Support (BLS) units, carrying ALS equipment in personal vehicles for the purpose of responding to medical emergencies, and offering or providing paramedic services in settings other than those described above.

PARAMEDIC SCOPE OF PRACTICE

Delaware paramedics serve as physician extenders in providing prehospital advanced life support within the state, and, as specified in reciprocity agreements, in surrounding states.

The underlying objective of all paramedic activities is the rapid treatment, stabilization, and transport of the sick and injured to appropriate receiving facilities. The paramedic is authorized to provide all "first responder" and basic life support interventions in addition to the advanced life support procedures specified by this statewide standard treatment protocol, as approved by the Board of Medical Practice. Unless an imminent threat to life or limb necessitates immediate treatment, it is in the patient's best interest for the paramedic to obtain the chief complaint, history of present illness, pertinent past medical history, list of medications, and conduct a directed physical examination. Information gathered during the assessment is then used to guide treatment.

Paramedics respond to all calls to which they are dispatched, whether the nature of the call is medical or trauma. Paramedics evaluate and treat prehospital patients utilizing guidelines specified by these protocols. Communication is to be established with medical control as soon as possible, even if treatment of the patient does not require authorization by medical control. Treatments that do require authorization by medical control shall not be carried out on the paramedic's own initiative except under exceptional circumstances where communication with medical control is not immediately obtainable and, in the opinion of the paramedic, the patient's life may be jeopardized by further delay. At no time shall paramedics perform procedures beyond their scope of training or practice. A list of procedures ordinarily accomplished by protocol and verbal order of medical control follows and clearly defines the scope of paramedic practice. All patients evaluated by the paramedics are to be transported to the hospital. The only exceptions to this rule occur when patient care is released to another EMS agency or when the patient refuses service. In some instances, medical control must be contacted for authorization per standing order.

In cases of anticipated, actual or pending public health need paramedics may be authorized by the Director of Public Health and the State EMS Medical Director to give immunizations and vaccinations against infectious/communicable diseases. Specific immunization standing orders, administrative procedures and modifications to protocols must be authorized and signed by the Director of Public Health the State EMS Director and the State EMS Medical Director. This standing order must meet or exceed the policy standards and guidelines established by the National Vaccine Advisory Committee of the Centers for Disease Control (CDC). Participation in the vaccination program by Delaware Paramedic Agencies is elective.

Use of the standing orders within the Statewide Standard Treatment Protocol is straightforward. When ALS providers functioning as Delaware paramedics encounter a patient meeting the proper criteria as described in the order, treatment should be initiated. The orders are designed to permit paramedics to render emergent treatment of the sick and injured. Treatment should proceed through the protocol until the patient's condition changes or stabilizes. If the change in patient condition meets the criteria for a different standing order, treatment should be altered accordingly. For example, a victim in cardiac arrest who displays a variety of dysrhythmias would require paramedics to follow different protocols depending on the rhythm. Once the patient is stabilized, or the orders have been completed, medical control must be contacted. Medical control may of course be contacted at any point during patient care, preferably early in the course of therapy, but must be contacted in all cases, preferably before transportation is initiated, unless the trauma protocol is in use.

MINIMUM SKILLS AND PROCEDURES

The following are skills and procedures that all paramedics must demonstrate proficiency in for initial certification and must maintain proficiency in for recertification. Procedures that are allowed only with approval by medical control are marked by an asterisk (*). All equipment/devices carried by or utilized by ALS agencies require the written approval of the State EMS Medical Director.

1. Patient assessment (primary and secondary surveys)
2. Obtaining vital signs including temperatures
3. Airway control (manual)
4. Use of airway adjuncts (nasopharyngeal and oropharyngeal airways)
5. Spine immobilization/stabilization
6. Cardio-pulmonary resuscitation
7. Bleeding control
8. Splinting of fractures and dislocations
9. Endotracheal intubation (oral and nasal)
10. Obtaining IV access (includes use of saline locks and accessing central lines)
11. Medication, vaccine and immunization administration (parenteral, intraosseous, endotracheal, intranasal, nebulized, oral, sublingual, and transdermal)
12. Calculation of drug dosages
13. Defibrillation/cardioversion (includes use of SAED)
14. Dysrhythmia recognition and treatment
15. External cardiac pacing
16. Use of suction equipment
17. Application of oxygen delivery devices (includes use of CPAP)
18. Use of bag-valve-mask device
19. Application of cardiac monitors
20. Venipuncture to obtain blood samples
21. Vaginal delivery
22. Eye irrigation
23. External jugular cannulation
24. Use of Magill forceps to remove foreign body from the obstructed airway
25. Pulse oximetry and CO-oximetry
26. Capnography (nasal and endotracheal)
27. 12 lead electrocardiogram (ECG)
28. Blood glucose determination and other point of care testing devices as approved by the State of Delaware Medical Directors
29. Valsalva maneuvers (to control supraventricular tachycardia)
30. Intraosseous access for fluid/medication administration
31. Use of approved rescue airway device
32. Gastric tubes
33. Surgical/Needle cricothyrotomy
34. Needle chest decompression
35. *Presumptive diagnosis of death*
36. Use of pelvic compression devices
37. Use of approved ventilator device
38. Use of tourniquets and approved hemostatic agents
39. Use of approved mechanical chest compression device

PARAMEDIC RADIO/TELEPHONE REPORTS GUIDELINES

The paramedic report to medical control should be brief and concise. The goal is to provide enough vital information to medical control so that they may provide informed direction for the patient's continued care and plan for the patient's disposition. Reports generally should not exceed thirty (30) seconds in duration in order to provide economical use of time by the paramedic, the medical control physician, and nursing personnel.

For ALS Priority I patients or patients requiring online medical direction for orders or consultation following report format is acceptable:

- Paramedic unit number.
- Estimated time of arrival.
- Priority.
- Patient age.
- Patient sex.
- Chief complaint and related past medical history (i.e., patient with chest pain, history of MI and CABG or patient with altered mental status and history of insulin dependent diabetes).
- Vital signs.
- Significant physical findings (i.e., patient with shortness of breath found to have wheezing and to be hot to the touch, or the patient complaining of leg pain who has deformity of the mid thigh without distal pulses).
- Care rendered.
- Response to care.
- Orders requested.
- Run case number is required for DOPA.

In patients who have an ALS Priority of II or III and are being treated by standing orders with no anticipated requests for orders, the following brief report format is acceptable:

- Paramedic unit number.
- Priority.
- Patient age.
- Patient sex.
- Chief complaint.
- Standing Order being followed.
- Estimated time of arrival.

- The above information should be more than adequate for most paramedic runs. When additional information is felt to be important for patient care or disposition, the medical control physician is well within their jurisdiction to request more information.

PARAMEDIC DOCUMENTATION RECORDS POLICY

At the time of patient delivery to an approved healthcare facility, the paramedic must give a verbal report to a physician or nurse at the patient's bedside and leave identified copies of all pertinent ECGs, rhythm strips, and printed patient trend data before leaving the receiving facility.

Patient care is not finished until a patient care report (PCR) is completed. Paramedics must complete, without exception, a written/computer report on each patient contact. The PCR should be completed before the paramedic leaves the facility to which the patient was transported. An exception to this policy is the need to provide care to another patient when other paramedic units are not readily available. Should the paramedic unit be dispatched prior to completing the PCR, every attempt should be made to complete the report as soon as possible. All PCRs should be completed and submitted to the receiving facility within four (4) hours of patient delivery. **Without exception, a PCR must be completed and submitted to the receiving facility before a paramedic goes off duty.**

The EDIN Quality Assurance Audit Screen will be set to flag all charts printed more than four hours after patient arrival at the receiving facility.

ADULT GENERAL PATIENT CARE

INDICATIONS: Any adult patient requiring pre-hospital medical evaluation by a prehospital healthcare provider in the State of Delaware.

A patient is defined as anyone who has endured a medical or traumatic event for which EMS has been activated.

The Adult General Patient Care protocol will be followed in conjunction with all other applicable protocols.

- Respond using lights and sirens in accordance with Priority Medical Dispatch® (PMD®) protocols currently approved by Delaware EMS Medical Directors.
- Perform scene survey. *Delaware EMS Medical Directors recommend that all EMS crews carry “room” carbon monoxide detectors with an audible alert on their first-in bag for provider and patient protection.*
- Observe universal precautions.
 - Follow your agency’s infection control policy.
 - Delaware EMS Medical Directors recommend wearing masks when caring for patients with active coughing. Consider masking the patient pending respiratory status.
- Consider the need for additional resources.
- Determine responsiveness using AVPU.
- Evaluate Airway, Breathing, Circulation, and Disability, Exposing the patient as necessary.
- Secure a patent airway appropriately.
- Manage cervical spine appropriately.
- Treat life-threatening conditions as necessary per specific treatment protocols.
- **Contact medical control** for consideration of a needle chest decompression.
- Assess body systems as appropriate.
- Monitor patient via the use of pulse oximetry and/or capnography, as appropriate.
- Administer oxygen as appropriate (maintain a SaO₂ of at least 92%).
- Obtain medical history (HPI, PMH, allergies, and medications).
- Evaluate blood pressure, pulses, respiratory rate, and tactile temperature. Reassess with a frequency indicated by patient condition.
- Monitor blood glucose levels as appropriate.
- Monitor cardiac rhythm and/or 12 lead ECG as appropriate.
- Assign treatment priority and make transport decision.
- Establish intravenous access with normal saline infused as appropriate.

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- Consider intraosseous access if IV access cannot readily be obtained for Priority 1 patients in extremis that are in need of medication or fluid resuscitation.
 - Administer 20 – 40 mg lidocaine IO over 1 minute in the conscious patient if not contraindicated
 - Administer 10 ml NSS rapid IO push
 - All IV medications can be administered IO
- Consider the insertion of an orogastric tube after the patient is successfully intubated.
- Consider the administration of 8 mg Zofran (Ondasteron®) ODT, IV or IM for nausea or vomiting.
- Contact medical control as soon as possible.
- Contact medical control for BLS release if appropriate.
- Secure patient in ambulance using appropriate equipment per ambulance design and agency standard operating procedures.
- Transport patient to an appropriate medical facility via appropriate mode of transportation without delay. Transport should be made safely and in a manner as to prevent further injury through the appropriate use of lights and sirens or no lights and sirens. **The highest medically trained practitioner engaged in patient care will determine the medically appropriate mode of transportation based upon the patient's presenting medical condition. This practitioner will communicate with the transporting EMS vehicle's operator and advise him/her as to the transport mode to be utilized.**
- Responsibility of care does not end until transfer of care of the patient to an appropriately trained health care provider is completed.
- Document relevant findings and treatments.

Priority I Patient suffering from an immediate life or limb threatening injury or illness.

It is the consensus of the EMS medical directors that during transport to the hospital lights and sirens are not medically indicated for many Priority I patients.

Priority II Patients suffering from an injury or illness that if left untreated could potentially threaten life or limb.

It is the consensus of the EMS medical directors that during transport to the hospital, lights and sirens are not medically indicated for Priority II patients.

Priority III Patient suffering from an injury or illness that requires medical attention but does not threaten life or limb.

It is the consensus of the EMS medical directors that during transport to the hospital, lights and sirens are not medically indicated for Priority III patients.

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The approved pharmacology manual should be used for medication reference.

Zofran (Ondasteron[®]) ODT means oral dissolving tablet

CO-oximetry may be performed as an option by agencies carrying CO monitoring equipment.

It should be noted that the General Patient Care protocol above is a guideline to be followed in as much as it aids in providing appropriate and timely medical care. The ALS provider may change the order or omit steps listed above as dictated by sound judgment of the care provider and/or presentation of the patient(s).

The following information should be passed on in either verbal or written form at the time of patient transfer: HPI, PMH, allergies, medications, vital signs, SaO₂, EtCO₂, cardiac rhythm, prehospital treatments, and patient's response to those treatments.

ACUTE RESPIRATORY DISTRESS

INDICATIONS: *Acute exacerbation of asthma, emphysema, and reactive airway disease; cough, shortness of breath, air hunger, wheezing, diminished breath sounds, retractions, and tachypnea.*

Contact medical control prior to medication administration if the patient's heart rate is greater than 150 beats per minute (BPM).

- Consider capnography.
- Consider early CPAP for an alert patient who is able to maintain a patent airway but is, or continues to be, in moderate to severe respiratory distress.
- If the patient who is short of breath has a history of asthma, emphysema, or is actively wheezing, administer up to 5 mg of albuterol via nebulized aerosol.
- Consider the administration of 0.5 mg nebulized ipratropium bromide (Atrovent[®]) with albuterol.
- If wheezing continues after first albuterol treatment is completed, you may administer a second dose of up to 5 mg of albuterol via nebulized aerosol if the patient's heart rate remains less than 150 BPM.
- For mild to moderate respiratory distress, consider the administration of prednisone 60 mg PO in combination with Maalox[®] 50 mg or other PO fluid.
- For severe respiratory distress secondary to asthma or COPD, administer 125 mg methylprednisolone (Solu-Medrol[®]) IV.
 - *Hold all steroids for suspected pneumonia, CHF or "metabolic hyperventilation" (DKA, sepsis, etc.).*
- **Contact medical control** for consideration of administration of 2 g magnesium sulfate IV over 10 minutes for continuing severe respiratory distress secondary to asthma or COPD.

For patients prescribed and taking levalbuterol (Xopenex[®]) via nebulizer, the substitution of the patient's own medication in place of albuterol is acceptable.

Usual Xopenex doses: 0.31 mg/3 ml; 0.63 mg/3 ml; 1.25 mg/3 ml

Early CPAP at the point of contact, as the first ALS procedure, is preferable to the delay of initiation in the ambulance.

PULMONARY EDEMA DUE TO CONGESTIVE HEART FAILURE

INDICATIONS: *Afebrile, shortness of breath, air hunger, tachypnea, tachycardia, elevated blood pressure, rales, neck vein distention, and diaphoresis.*

- Consider capnography.
- Apply early CPAP for an alert patient who is able to maintain a patent airway but is, or continues to be, in moderate to severe respiratory distress.
- **IV must be established prior to NTG administration for patients not currently prescribed and taking NTG.**
 - Administer 0.4 mg nitroglycerin (NTG) SL. Repeat NTG at a higher dose of 0.8 mg NTG every 3-5 minutes. If systolic blood pressure (SBP) is less than 120 mmHg, discontinue NTG administration until SBP recovers to greater than 120 mmHg.
 - Apply 1" nitroglycerin paste if systolic blood pressure is greater than 120 mmHg.
- If no improvement with initial therapy and the patient is on furosemide (Lasix®), consider the administration of furosemide IV in a dose equivalent to the patient's **total** daily dose (maximum furosemide dose is up to 100 mg. Withhold if systolic blood pressure is less than 120 mmHg).
 - **Contact medical control to administer doses in excess of 100 mg IV or if the patient is not on furosemide**
 - If the daily dose is unknown, administer 40 mg furosemide IV
- Perform and interpret 12 lead ECG.

Assessment and management of airway and breathing precedes the performance of a 12 lead ECG. Withhold nitrates and contact medical control if the patient relates taking sildenafil (Viagra®/Revatio®) or vardenafil (Levitra®) within the last 24 hours or tadalafil (Cialis®), or any other prescription erectile dysfunction drugs within the last 48 hours.

Afebrile is defined as no history of recent fever and no tactile temperature or a measured temperature outside the range of 36-38°Celsius (96.8°F to 100. 4°F).

Early CPAP at the point of contact, as the first ALS procedure, is preferable to the delay of initiation in the ambulance.

ALTERED MENTAL STATUS

INDICATIONS: *Incomprehensible speech, inappropriate verbal responses, inability to follow verbal commands, decreased responsiveness, or unresponsiveness.*

- Obtain venous blood samples and determine serum blood glucose by glucometer.
- If blood sugar is less than 60 mg/dl, administer up to 25 g of dextrose IV.
- If blood sugar is less than 60 mg/dl by glucometer and intravenous access is not obtainable, administer 1 mg glucagon IM, IN.
- Consider the administration of 0.4 - 2 mg naloxone (Narcan[®]) IV, IN, or IM to provide for a patent, self-maintained airway and adequate respirations.
- Consider alternative causes of altered mental status.

Dextrose may be may be mixed in a 100 ml bag of NSS and run wide open as an alternative to direct push of D50.

Contact medical control for consideration of sodium bicarbonate for tricyclic antidepressant overdose, glucagon for beta blocker overdose, and calcium chloride for calcium channel blocker overdose.

Consider nasal prong EtCO₂ monitoring along with pulse oximetry to ensure adequate oxygenation and ventilation.

If a glucometer fails or is not immediately available, proceed with appropriate dosage of D50 or Glucagon.

HYPERTENSIVE CRISIS

INDICATIONS: *Two blood pressures measured five minutes apart with a diastolic BP of ≥ 120 mmHg or a MAP ≥ 130 mmHg, associated with any of the following: nausea/vomiting, headache, or visual disturbances.*

- Consider implementation of the pain management protocol for moderate-severe headaches.
- Contact medical control for consideration of the administration of 10 mg Labetalol (Trandate[®]) IV slowly over two (2) minutes.
- Reassess vital signs. If after ten (10) minutes of initial dose the diastolic BP remains ≥ 120 mmHg, contact medical control for the consideration of administration of a repeat dose of 10-20 mg Labetalol (Trandate[®]) IV slowly over two (2) minutes.

Withhold Labetalol for CHF, any heart block, bradycardia, suspected cocaine abuse, patients in cardiogenic shock or asthmatics.

SUSPECTED STROKE

INDICATIONS: *Abnormality in Cincinnati Stroke Scale (positive pronator drift, speech deficit, facial droop), Altered mental status, seizure, headache, parasthesia, and hemiparesis in the absence of trauma, weakness, ataxia, visual disturbances, nausea, vomiting, general malaise, abnormal pupillary function, or other symptoms of suspected cerebral ischemia or hemorrhage.*

- Administer oxygen via nasal cannula at a quantity sufficient to maintain the oxygen saturation equal to or greater than 95%.
- Place patient in a semi to high-fowler's position if possible.
- If blood sugar is less than 60 mg/dl, administer up to 25 g of dextrose IV.
- Administer 1mg Glucagon IM, IN if the blood sugar is less than 80 mg/dl and an IV cannot be established.
- Determine onset of symptoms. Onset is defined as the last time the patient was verified as not having a neurological deficit. If the time since onset of symptoms is less than 4.5 hours, complete the State of Delaware Fibrinolytic Checklist and turn the checklist over to the appropriately trained healthcare provider.
- Transport to the nearest appropriate CT-capable medical facility without delay.
- For suspected hemorrhagic stroke:
 - Consider direct transport to a stroke center with emergent neurosurgical capabilities.
 - Perform a PT/INR measurement if available on patients suspected or known to be taking warfarin (Coumadin®).
- Early notification of "Stroke Alert" to receiving hospital is paramount with stroke patients (to include the PT/INR measurement if available).
- Perform and interpret 12 lead ECG.

Changes in hospital fibrinolytic protocols and the addition of interventional therapy may occur which could result in an interval change to this standing order.

SEIZURES (ACTIVE)

- If blood sugar is less than 60 mg/dl, administer up to 25 g of dextrose IV.
- Administer 1mg Glucagon IM, IN if the blood sugar is less than 60 mg/dl and an IV cannot be established.
- Administer up to 5 mg midazolam (Versed®) IV (slowly) for continued seizure activity. If unable to obtain intravenous access, midazolam should be given IM or IN.
- Administer 5 g magnesium sulfate IV infused over 10 minutes for seizures secondary to eclampsia.

Contact medical control for consideration of additional midazolam (Versed®) if the patient continues to have seizures following the initial dose.

ALLERGIC REACTIONS

Moderate Allergic Reaction

INDICATIONS: *Generalized allergic manifestations such as urticaria or history of an allergic exposure without airway compromise or shock.*

- Consider the administration of 25-50 mg diphenhydramine (Benadryl®) IV, IM, or PO.
- Consider the administration of prednisone 60 mg PO in combination with Maalox® 50 mg or other PO fluid.

Severe Allergic Reaction

INDICATIONS: *Generalized allergic manifestations such as urticaria or history of an allergic exposure with:*

1. *airway obstruction (partial or complete) **OR***
 2. *systolic blood pressure less than 80 mmHg with clinical evidence of shock.*
- Establish intravenous access using normal saline and administer a fluid bolus of 500 ml.
 - Administer 0.25 mg epinephrine (1:10,000) IV over a one-minute interval. If unable to establish intravenous access, 0.5 mg epinephrine (1:1,000) should be given IM.*
 - Reassess patient -- if acute respiratory obstruction persists or systolic blood pressure is less than 80 mmHg with clinical evidence of shock, repeat 0.25 mg epinephrine (1:10,000) IV over a one-minute interval.
 - Administer a second intravenous bolus of 500 ml normal saline if systolic blood pressure remains less than 80 mmHg with continued evidence of clinical shock.
 - Administer 50 mg diphenhydramine (Benadryl®) IV. If unable to obtain intravenous access, diphenhydramine may be given IM.
 - Administer 125 mg methylprednisolone (Solu-Medrol®) IV.

**Epinephrine 0.25 mg (1:10,000) may be mixed in a 100 ml bag of NSS and run wide open as an alternative to direct push of epinephrine.*

NON-TRAUMATIC HYPOTENSION

INDICATIONS: *Pulse greater than 60 bpm AND systolic blood pressure less than 80 mmHg AND absence of radial pulses bilaterally and/or clinical evidence of shock (altered mental status, pale/cool/clammy skin).*

- Rapidly infuse a 1000 ml bolus of NSS
 - Initiate two large bore IV catheters
- Frequently reassess vital signs and lung sounds
 - Withhold fluid if patient develops signs of acute CHF
- If hypotension continues, rapidly infuse an additional 1000 ml bolus of NSS.
- Consider a 5-20 mcg/kg/min dopamine infusion for continued hypotension not due to hypovolemia.

SEPSIS

(FOR AGENCIES USING POINT OF CARE (POC) LACTATE METERS)

Patients should have a POC lactate performed if two or more of the following are present:

Core temperature greater than 38°C (100.4°F) or less than 36°C (96.8°F)

Heart rate greater than 90 bpm

Respiratory rate >20

Hypotension

Any patient suspected of being septic

INDICATIONS: Suspicion of sepsis AND a lactate reading ≥ 4 mmol/L

- Rapidly infuse a 1000 ml bolus of NSS
 - Initiate two large bore IV catheters
- Frequently reassess vital signs and lung sounds
 - Withhold fluid if patient develops signs of acute CHF
- If hypotension continues, rapidly infuse an additional 1000 ml bolus of NSS.
- Consider a 5-20 mcg/kg/min dopamine infusion for continued hypotension not due to hypovolemia.
- Early notification of “Sepsis Alert” to receiving hospital is paramount with sepsis patients.

ACUTE CORONARY SYNDROMES (ACS)

*Suspect ACS for the following presentations: classic anginal chest pain, atypical chest pain, or anginal equivalents such as dyspnea, palpitations, syncope or pre-syncope, general malaise, or DKA. **All of these patients should have 12 lead performed and interpreted.***

INDICATIONS: *Classic anginal chest pain OR patients whose 12 lead is suspicious for ischemia.*

- Administer 162 mg aspirin PO, even if patient is pain free.
- **IV must be established prior to NTG administration for patients not currently prescribed and taking NTG.**
 - Administer 0.4 mg nitroglycerin (NTG) SL. Repeat 0.4 mg NTG every 3-5 minutes until pain, signs of ischemia, or injury resolves.
 - If systolic blood pressure (SBP) is less than 100 mmHg, discontinue NTG administration until SBP recovers to greater than 100 mmHg.
- Apply 1" nitroglycerin paste early in patient contact, even if patient is pain free.
- If chest pain, signs of ischemia or anxiety continue after the administration of three (3) nitroglycerin and if systolic BP is greater than 100 mmHg, consider administration of up to 100 mcg fentanyl (administered in up to 50 mcg increments given every five (5) minutes).
- Contact medical control for consideration of the administration of up to 5 mg of Versed in the presence of suspected cocaine usage within the past 72 hours.
- If patient displays persistent ventricular ectopy (defined as runs of V-Tach or R-on-T PVCs) refractory to oxygen and NTG administration, consider administration of 150 mg amiodarone (Cordarone®) IV infused over 10 minutes. Withhold amiodarone if the heart rate or pulse is less than 50 beats per minute.
- Consider performing diagnostic cardiac marker blood tests.*
- Repeat 12 lead ECG throughout transport as necessary.

Early notification to receiving hospital is paramount in the treatment of ACS.

The 12 lead ECG may be deferred initially in order to stabilize the hemodynamically unstable patient.

Withhold nitrates and contact medical control if the patient relates taking sildenafil (Viagra®/Revatio®) or vardenafil (Levitra®) within the last 24 hours or tadalafil (Cialis®), or any other prescription erectile dysfunction drugs within the last 48 hours.

Do not administer aspirin if the patient reports an allergy to aspirin or other NSAIDs.

**Cardiac marker blood tests may be performed as a research study by agencies approved by the Office of Emergency Medical Services.*

ST ELEVATION MYOCARDIAL INFARCTION (STEMI)

*Suspect STEMI for the following presentations: classic anginal chest pain, atypical chest pain, or anginal equivalents such as dyspnea, palpitations, syncope or pre-syncope, general malaise, or DKA. **All of these patients should have 12 lead performed and interpreted.***

INDICATIONS: Suspicion of ACS and a prehospital 12 lead diagnosis of STEMI.

- Administer 162 mg aspirin PO, even if patient is pain free.
- Transport when practical to an emergent Percutaneous Coronary Intervention (PCI) capable facility for patients diagnosed with STEMI.
- Early notification to receiving hospital is paramount in the treatment of STEMI; request a "Heart Alert".
- **IV must be established prior to NTG administration for patients not currently prescribed and taking NTG.**
 - Administer 0.4 mg nitroglycerin (NTG) SL. Repeat 0.4 mg NTG every 3-5 minutes until 12 lead signs of injury resolve.
 - If systolic blood pressure (SBP) is less than 100 mmHg, discontinue NTG administration until SBP recovers to greater than 100 mmHg.
- Apply 1" nitroglycerin paste early in patient contact, even if patient is pain free.
- Consider administration of up to 100 mcg fentanyl (administered in up to 50 mcg increments given every five (5) minutes.) if systolic BP is greater than 100 mmHg (may be administered as soon as IV is established).
- Contact medical control for consideration of the administration of up to 5 mg of Versed in the presence of suspected cocaine usage within the past 72 hours.
- If patient displays persistent ventricular ectopy (defined as runs of V-Tach or R-on-T PVCs) refractory to oxygen and NTG administration, consider administration of 150 mg amiodarone (Cordarone®) IV infused over 10 minutes. Withhold amiodarone if the heart rate or pulse is less than 50 beats per minute.
- Repeat 12 lead ECG throughout transport.
- Complete the State of Delaware Fibrinolytic Checklist and turn the checklist over to the appropriately trained healthcare provider.

The 12 lead ECG may be deferred initially in order to stabilize the hemodynamically unstable patient.

Do not administer aspirin if the patient reports an allergy to aspirin or other NSAIDs.

Withhold nitrates and contact medical control if the patient relates taking sildenafil (Viagra®/Revatio®) or vardenafil (Levitra®) within the last 24 hours or tadalafil (Cialis®), or any other prescription erectile dysfunction drugs within the last 48 hours.

HEMODYNAMICALLY COMPROMISING BRADYCARDIA

INDICATIONS: *Pulse less than 60 bpm with clinical evidence of shock (i.e., altered mental status, pale/cool/clammy skin, systolic blood pressure less than 80 mmHg OR absence of radial pulses bilaterally).*

- Initiate transcutaneous cardiac pacing (TCP). Do not delay while awaiting IV access. Set rate at 80 per minute. Rapidly increase the output (MA) until capture occurs, or the maximum MA is reached.
 - TCP may be deferred until after atropine administration if intravenous access can be rapidly obtained, and the patient's condition is not deteriorating.
 - **If electrical or mechanical capture is achieved**, do not give atropine, unless capture is lost, and bradycardia recurs.
 - If the patient is experiencing discomfort due to pacing and the systolic blood pressure is greater than or equal to 100 mmHg, administer up to 5 mg midazolam (Versed®) IV or IN for sedation.
- Administer 0.5 mg atropine IV. Repeat 0.5 mg atropine IV every 3-5 minutes until a maximum of 3 mg of atropine is administered or the pulse rate is 60 bpm or greater.
- Infuse up to a 1000 ml bolus of NSS
- Frequently reassess vital signs and lung sounds
 - Withhold fluid if patient develops signs of acute CHF
- Consider a 5-20 mcg/kg/min dopamine infusion for continued hypotension not due to hypovolemia.

Contact medical control for consideration of glucagon IV if a beta-blocker overdose is suspected.

Contact medical control for orders to administer calcium chloride and possibly sodium bicarbonate, if the patient has a history of chronic renal failure and either hemodialysis or peritoneal dialysis.

STABLE TACHYCARDIA

INDICATIONS: A wide complex tachycardia (QRS \geq 0.12 seconds) presumed to be ventricular tachycardia (VT), with a rate exceeding 100 bpm, or a narrow complex tachycardia (QRS $<$ 0.12 seconds) other than sinus tachycardia. There should be no evidence of trauma, hypovolemia, fever or sepsis.

For purposes of this Standing Order, **STABLE** is defined as a patient with a systolic blood pressure greater than 80 mmHg.

- If the rhythm is a **wide complex tachycardia** at a rate exceeding 100 bpm:
 - Administer 150 mg amiodarone (Cordarone[®]) IV infused over 10 minutes.
- If the rhythm is a **narrow complex tachycardia**, other than sinus tachycardia, atrial fibrillation or atrial flutter, at a rate exceeding 150 bpm:
 - Consider Valsalva maneuver. (Carotid massage may not be performed).
 - Administer 6 mg adenosine (Adenocard[®]) IV rapidly.
 - If there is no response to the initial 6 mg dose, administer 12 mg adenosine.
 - If there is no response to the second dose, administer 12 mg adenosine.
 - Administer 0.25 mg/kg diltiazem (Cardizem[®]) IV (maximum dose is 25 mg) over 2 minutes.
 - If there is no response to the initial dose of diltiazem after 15 minutes, **contact medical control** for consideration of administration of 0.35 mg/kg diltiazem IV (maximum dose if 35 mg) over 2 minutes.
- If the rhythm is a **narrow complex atrial fibrillation or atrial flutter** at a sustained rate exceeding 120 bpm and the patient is without signs or symptoms of congestive heart failure:
 - Administer 0.25 mg/kg diltiazem (Cardizem[®]) IV (maximum dose is 25 mg) over 2 minutes.
 - If there is no response to the initial dose of diltiazem after 15 minutes, **contact medical control** for consideration of administration of 0.35 mg/kg diltiazem IV (maximum dose if 35 mg) over 2 minutes.

Contact medical control for orders to administer calcium chloride and possibly sodium bicarbonate, if the patient has a history of chronic renal failure and either hemodialysis or peritoneal dialysis.

Adenosine: potentiated by dipyridamole (Persantine), use half (1/2) doses. Use with caution with patients on carbamazepine (Tegretol), digoxin and verapamil.

Diltiazem (Cardizem) use with caution, contact medical control when patients are on digoxin.

UNSTABLE TACHYCARDIA

INDICATIONS: A wide complex tachycardia (QRS \geq 0.12 seconds) presumed to be ventricular tachycardia (VT), with a rate exceeding 100 bpm, or a narrow complex tachycardia (QRS $<$ 0.12 seconds) other than sinus tachycardia, with a rate exceeding 150 bpm. There should be no evidence of trauma, hypovolemia, fever or sepsis.

For purposes of this Standing Order, UNSTABLE is defined as systolic blood pressure less than 80 mmHg OR radial pulses are absent bilaterally, with clinical evidence of shock. Patients with altered mentation and clinical evidence of shock are UNSTABLE, even if the systolic blood pressure is greater than 80 mmHg.

- If appropriate, consider adenosine administration for narrow complex tachycardia if IV is established.
- Consider the administration of up to 0.2 mg/kg etomidate (Amidate®) IV prior to cardioversion of an alert patient.
- Perform synchronized cardioversion using 100 joules.
- Perform synchronized cardioversion using 200 joules.
- Perform synchronized cardioversion using 300 joules.
- Perform synchronized cardioversion using 360 joules.
- Contact medical control for additional cardioversion attempts past the fourth attempt.
- Infuse up to a 1000 ml/kg bolus of NSS.
- Frequently reassess vital signs and lung sounds
 - Withhold fluid if patient develops signs of acute CHF
- Upon successful conversion, perform and interpret 12 lead ECG.
- For wide complex tachycardia, administer 150 mg amiodarone (Cordarone®) IV infused over 10 minutes:
 - If there is no response to cardioversion,
 - OR upon successful conversion,
 - AND if needed for a recurrence.

Contact medical control for orders to administer calcium chloride and possibly sodium bicarbonate, if the patient has a history of chronic renal failure and either hemodialysis or peritoneal dialysis.

Biphasic devices may use FDA approved/recommended energy settings.

INITIATION/TERMINATION OF RESUSCITATIVE EFFORTS

INITIATION INDICATIONS: *For initiation of cardiopulmonary resuscitation for patients in cardiac arrest*

- CPR shall be initiated **unless** one or more of the following criteria apply:
 - Resuscitation would place the rescuer at significant risk of physical injury.
 - The rescuer is presented with an apparently valid Prehospital Advanced Care Directive (PACD) signed by a physician.
 - Obvious signs of death are present, including (but not limited to) rigor mortis, dependent lividity, or injuries incompatible with life.
 - Decapitation
 - Body fragmentation
 - Severe crush injury to head (without vital signs)
 - Severe crush injury to chest (without vital signs)
 - Severe thermal burns (without vital signs)
 - Gunshot wounds to the head with lateral entrance wound and an opposite side exit wound (without vital signs)
 - Decomposition of the body.
 - Skeletalization
 - Severe bloating (without vital signs)
 - Skin slough (without vital signs)
- For patients not meeting the criteria for initiation of cardiopulmonary resuscitation, withhold resuscitation and initiate medical consultation in order to complete the State of Delaware's Dead on Paramedic Arrival (DOPA) documentation.

TERMINATION INDICATIONS: *For the termination of cardiopulmonary resuscitation*

- CPR in the prehospital setting may be discontinued when both of the following criteria apply:
 - Patients in cardiopulmonary arrest who, despite effective chest compressions, airway management and rhythm-specific ACLS therapy, remain in cardiopulmonary arrest without any return of spontaneous circulation.
 - A decision is made in conjunction with on-line medical control that resuscitation should be terminated and the DOPA protocol will be followed.
- Resuscitation may be terminated without medical control during a Multi-Casualty Incident on patients with non-salvageable injuries as determined by START® Triage. This is reserved for events where EMS resources are required for stabilization of living patients.
 - Formal DOPA protocol will be initiated once resources allow.

Consider the use of capnography to assist with the decision to terminate resuscitative efforts.

VENTRICULAR FIBRILLATION (VF) and/or
PULSELESS VENTRICULAR TACHYCARDIA (VT)

- In the absence of effective CPR on arrival and when response time is greater than four (4) minutes, perform 2 minutes of CPR prior to first defibrillation or intubation.
- Defibrillate using 360 joules every 2 minutes.
- Perform 2 minutes of CPR between each defibrillation attempt.
- Administer 1 mg epinephrine (1:10,000) IV. Repeat 1 mg epinephrine (1:10,000) IV every 3-5 minutes if VF or pulseless VT persists.
- Consider administration of 2 g magnesium sulfate IV if Torsade de Pointes is identified.
- Administer 300 mg amiodarone (Cordarone®) IV, with a repeat dose of 150 mg after 10 minutes.
- Compressions will not be interrupted for longer than 10 seconds for intubation or other procedures. Intubation should be performed during pulse/rhythm check or during compressions and should be deferred until later in the resuscitation. Consider **early** use of rescue airway device for anticipated difficult intubation.

With return of spontaneous circulation:

- Administer 150 mg amiodarone (Cordarone®) IV infused over 10 minutes if patient has received one dose or less of amiodarone (Cordarone®).
- Initiate Induced Hypothermia standing order.

Guidelines

- *Biphasic devices may use FDA approved/recommended energy settings*
- *Ventilations*
 - *Ventilate at 8-10 breaths per minute to decrease intrathoracic pressure*
 - *Patients should be bagged using a one-hand squeeze*
- *Intubation is secondary to quality chest compressions and*
- *Compressions*
 - *CPR should be adjusted to provide for an EtCO₂ reading of greater than 10 mmHg, with greater than 20 mmHg preferred to improve chance of return of spontaneous circulation (ROSC)*
 - *Ensure proper depth and rate of compressions (at least 100 per minute) and minimize hands-off time*
 - *Frequently switch providers performing chest compressions to maintain peak performance, consider use of optional mechanical chest compression device.*
 - *Ensure complete recoil of the chest wall prior to the next compression*
- *It is the consensus of the EMS medical directors that during transport to the hospital, lights and sirens are not medically indicated for cardiac arrest patients.*
- *Contact medical control for orders to administer calcium chloride and possibly sodium bicarbonate if the patient has a history of chronic renal failure and either hemodialysis or peritoneal dialysis.*

ASYSTOLE / PULSELESS ELECTRICAL ACTIVITY (PEA)

- In the absence of effective CPR on arrival and when response time is greater than four (4) minutes, perform 2 minutes of chest compressions prior to first defibrillation or intubation.
- Consider **early** transcutaneous pacing for heart rates less than 60 bpm.
- Administer 1 mg epinephrine (1:10,000) IV. Repeat 1 mg epinephrine (1:10,000) IV every 3 to 5 minutes if asystole or PEA continues.
- For asystole or PEA at a ventricular rate less than 60 bpm, administer atropine 1 mg IV. Atropine 1 mg IV may be repeated every 5 minutes until ventricular rate is greater than 60 bpm or a total of 3 mg of atropine has been given.
- Infuse up to 1000 ml bolus of NSS
- Compressions will not be interrupted for longer than 10 seconds for intubation or other procedures. Intubation should be performed during pulse/rhythm check or during compressions and should be deferred until later in the resuscitation. Consider **early** use of rescue airway device for anticipated difficult intubation.

With return of spontaneous circulation:

- Initiate Induced Hypothermia standing order.

Without return of spontaneous circulation, after 3 rounds of ACLS rhythm specific medications, and consideration of PEA treatable causes:

- Consider termination of efforts standing order

Guidelines

- *Ventilations*
 - *Ventilate at 8-10 breaths per minute to decrease intrathoracic pressure*
 - *Patients should be bagged using a one-hand squeeze*
- *Compressions*
 - *CPR should be adjusted to provide for an EtCO₂ reading of greater than 10 mmHg, with greater than 20 mmHg preferred to improve chance of return of spontaneous circulation (ROSC)*
 - *Ensure proper depth and rate of compressions and minimize hands-off time*
 - *Frequently switch providers performing chest compressions to maintain peak performance consider use of optional mechanical chest compression device.*
 - *Ensure complete recoil of the chest wall prior to the next compression*
- *It is the consensus of the EMS medical directors that during transport to the hospital, lights and sirens are not medically indicated for cardiac arrest patients.*
- *Contact medical control for orders to administer calcium chloride and possibly sodium bicarbonate, if the patient has a history of chronic renal failure and either hemodialysis or peritoneal dialysis.*

PROTOCOL FOR THE TELEMETRIC PRONOUNCEMENT OF DEATH

- Upon arrival at the scene of a patient with an illness or injury, the paramedics will follow applicable standing orders. If resuscitative efforts have been initiated by Ambulance Attendants or bystanders, the paramedics should proceed with patient assessment.
 - In the following circumstances the paramedic may contact the medical control physician to request that the patient be pronounced dead at the scene.
 - **Injuries which are obviously incompatible with life.**
 - Decapitation
 - Body fragmentation
 - Severe crush injury to head (without vital signs)
 - Severe crush injury to chest (without vital signs)
 - Severe thermal burns (without vital signs)
 - Gunshot wounds to the head with lateral entrance wound and an opposite side exit wound (without vital signs)
 - **Decomposition of the body.**
 - Skeletalization
 - Severe bloating (without vital signs)
 - Skin slough (without vital signs)
 - **Absence of signs of life.***
 1. Pulselessness
 2. Apnea
 3. Fixed and dilated pupils
 4. Dependent lividity, **
 5. Generalized rigor mortis, ** (prior to lysis)
 6. Asystole on the ECG monitor (an ECG strip must be attached to the patient care report in every case).
- * All must be present for a “medical patient” to be pronounced.
- ** In the case of blunt trauma patients, the medical control physician may waive requirement #4 and #5.
- Only the medical control physician may pronounce a patient dead, while in direct contact with the paramedic. It is not acceptable for the information on death pronouncement to be transmitted from the paramedic to the physician through an intermediary. The medical control physician must be physically present at the radio or telephone to receive the information directly from the paramedic.
 - Once the medical control physician has pronounced the patient dead, the paramedic will notify the appropriate police department and the Delaware Medical Examiner’s Office if not already done.
 - Removal of the decedent, once properly pronounced, is performed only if authorized by jurisdictional police agencies and the Medical Examiner.
 - Once the patient is pronounced dead, the paramedic will obtain a case number from the dispatch center. In situations where more than one patient has been pronounced dead, identification will be assured by using the case number followed by a letter, beginning with “A” and progressing in alphabetical order (i.e. case #234567-A, #234567-B, #234567-C, etc.).

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- The case number is to be used by the paramedic to identify the decedent to the medical control physician for purposes of completing the death certificate.
- Upon pronouncement of a patient's death, the medical control physician will immediately complete a death certificate (under pronouncing physician section). The physician will include the assigned case number on the left upper margin of the death certificate. The death certificate will then be placed in a secure, but convenient location within the medical command facility, to be retrieved by the Medical Examiner's Investigator when the death falls within the jurisdiction of the Medical Examiner, or by the family-assigned funeral director in non-Medical Examiner's cases. A base report will be completed in the usual manner.
- After the patient has been pronounced dead, the paramedic will place a hospital type band around the patient's right ankle (any extremity is acceptable if right ankle is not present). The band should contain the following written information:
 - Case/Incident number
 - Paramedic identification number
 - Medical command facility name
 - Medical control physician identification number
 - Time and date of death pronouncement
 - Other information deemed appropriate by the paramedic crew
- The paramedic will notify the responsible family member that the patient is dead. Paramedics are encouraged to utilize appropriate support services to assist family members in grieving.
- Upon arrival of the police, paramedic supervisor or the investigator for the Medical Examiner, the paramedics and ambulance attendants will return to active status.
 - In the case of a nursing home facility resident DOPA, the patient may be turned over to a Registered Nurse or on duty clinical supervisor and units may return to active status.
- Prior to completion of his/her work shift, the paramedic will file a complete, standard run report detailing in the usual manner the pertinent aspects of the case. The run report is to be distributed to the usual locations along with a copy to the pronouncing medical command facility. This paramedic run report is to be available at the medical command facility within twelve (12) hours of the run. If the paramedic is able to complete the run report prior to leaving the scene, copies of the run report are to be distributed in the usual manner so as to assure patient confidentiality. A copy may be left with an authorized Medical Examiner.
- The circumstances of death must be investigated by the Medical Examiner's office and/or the police having jurisdiction over the geographic area of pronouncement. Should the death be deemed a Medical Examiner's case, the Medical Examiner's office shall be responsible for the transportation of the body and the collection and completion of all necessary legal documents.
- Should the case not be deemed a Medical Examiner's case, the body may be transported by a licensed funeral director to the funeral home of the family's choosing. The collection and completion of all necessary legal documents shall be coordinated by the funeral director.
- The decedent may be taken to a hospital emergency department in select circumstances.

REFUSAL OF SERVICE

INDICATIONS: *Paramedics often respond to scenes where the patient wishes to decline service. It is important that the paramedic obtains the patient's informed consent before leaving the scene; otherwise the paramedic might be exposed to legal liability for abandonment of the patient.*

- Contact medical control for patients presenting or having originally presented with:
 - Suspicion of intoxication by drugs or alcohol
 - Past medical history or suspicion of dementia
 - Any intervention performed by any other healthcare provider
 - A summons of EMS to a health care facility or call initiated by a health care provider.
 - Suspicion of acute mental disease or suicidal or homicidal ideation
 - Suspicion of a significant head injury
 - Respiratory distress
 - Abnormal vital signs (normal vital signs are defined as a heart rate between 60-100 bpm, systolic blood pressure > 100 mmHg, respiratory rate 12-20 bpm, and a SaO₂ reading >95% on room air)
 - Altered mental status
 - An age less than 18 years
- Medical control is not required for all other patients unless concerns exist regarding the welfare of the patient. In the case of suspected patient coercion, domestic violence, abuse, etc. contact law enforcement.
- Inform the patient about needed treatment and possible outcomes. If the patient is felt to need treatment, every effort should be made to persuade the patient to consent to needed health care. Consider involving family, medical control and law enforcement.
- Obtain a signed Refusal of Service form and document the informed consent process, concerns, and, if applicable, the physician number on the appropriate report(s).

PEDIATRIC GENERAL PATIENT CARE

INDICATIONS: *Any patient who is 12 years of age or less (neonates are defined as a patient age 30 days and under) requiring pre-hospital medical evaluation by a pre-hospital health care provider in the State of Delaware.*

A patient is defined as anyone who has endured a medical or traumatic event for which EMS has been activated.

The Pediatric General Patient Care protocol will be followed in conjunction with all other applicable protocols.

- Respond using lights and sirens in accordance with Priority Medical Dispatch® (PMD®) protocols currently approved by Delaware EMS Medical Directors.
- Perform scene survey.
- Observe universal precautions.
 - Follow your agency's infection control policy.
- Consider the need for additional resources.
- Determine responsiveness using AVPU.
- Evaluate Airway, Breathing, Circulation, and Disability, Exposing the patient as necessary.
- Secure a patent airway appropriately.
- Manage cervical spine appropriately.
- Treat life-threatening conditions as necessary per specific treatment protocols.
- **Contact medical control** for consideration of a needle chest decompression.
- Assess body systems as appropriate.
- Monitor patient via the use of pulse oximetry and/or capnography, as appropriate.
- Monitor blood glucose level as appropriate.
- Administer oxygen as appropriate. (Maintain a SaO₂ of at least 92%)
- Obtain medical history (HPI, PMH, allergies, and medications).
- Evaluate blood pressure, pulses, respiratory rate, and tactile temperature. Reassess with a frequency indicated by patient condition.
- Monitor cardiac rhythm and/or 12 lead ECG as appropriate.
- Assign treatment priority and make transport decision.
- Establish intravenous access with normal saline infused as appropriate.
- **Use the Broselow™ tape to estimate drug dosages.**
- Consider intraosseous access, if IV access cannot readily be obtained for Priority 1 patients in extremis that are in need of medication or fluid resuscitation. If IO access is obtained, all IV medications can be administered IO.

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- Administer 0.5 - 1 mg/kg lidocaine IO over 1 minute in the conscious patient if not contraindicated
 - Administer 10 ml NSS rapid IO push
 - All IV medications can be administered IO
- For all other patients who are not in extremis, **contact medical control** for consideration of intraosseous access if IV access cannot readily be obtained for all other Priority 1 patients.
- Consider the insertion of an orogastric tube if the patient is successfully intubated.
- Consider the administration of 2 mg (older than 2 years and under the age of 6 years) or 4 mg (6 years or older) Zofran (Ondansetron®) ODT, IV or IM for nausea and vomiting.
- Contact medical control as soon as possible.
- Contact medical control for BLS release if appropriate.
- Secure patient in ambulance using appropriate equipment per ambulance design and agency standard operating procedures.
- Transport patient to an appropriate medical facility via appropriate mode of transportation without delay. Transport should be made safely and in a manner as to prevent further injury through the appropriate use of lights and sirens or no lights and sirens. **The highest medically trained practitioner engaged in patient care will determine the medically appropriate mode of transportation based upon the patient's presenting medical condition. This practitioner will communicate with the transporting EMS vehicle's operator and advise him/her as to the transport mode to be utilized.**
- Responsibility of care does not end until transfer care of the patient to an appropriately trained health care provider.
- Document relevant findings and treatments.

Priority I Patient suffering from an immediate life or limb threatening injury or illness.

It is the consensus of the EMS medical directors that during transport to the hospital lights and sirens are not medically indicated for many Priority I patients.

Priority II Patients suffering from an injury or illness that if left untreated could potentially threaten life or limb.

It is the consensus of the EMS medical directors that during transport to the hospital, lights and sirens are not medically indicated for Priority II patients.

Priority III Patient suffering from an injury or illness that requires medical attention but does not threaten life or limb.

It is the consensus of the EMS medical directors that during transport to the hospital, lights and sirens are not medically indicated for Priority III patients.

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The approved pharmacology manual should be used for medication reference.

It should be noted that the protocol above is a guideline to be followed in as much as it aids in providing appropriate and timely medical care. The ALS provider may change the order or omit steps listed above as dictated by sound judgment of the care provider and/or presentation of the patient(s).

The following information should be passed on in either verbal or written form at the time of patient transfer: HPI, PMH, allergies, medications, vital signs, SaO₂, EtCO₂, cardiac rhythm, pre-hospital treatments, and patient's response to those treatments.

CO-oximetry may be performed as an option by agencies carrying CO monitoring equipment.

PEDIATRIC ACUTE RESPIRATORY DISTRESS

INDICATIONS: *Acute exacerbation of asthma and reactive airway disease; cough, shortness of breath, air hunger, wheezing, diminished breath sounds, retractions, and tachypnea.*

Contact medical control prior to medication administration if the patient's heart rate is greater than 180 beats per minute.

- Consider capnography.
- If the patient who is short of breath has a history of asthma or is actively wheezing, administer up to 2.5 mg of albuterol via nebulized aerosol in combination with 0.5 mg nebulized ipratropium bromide (Atrovent®).
- For continued respiratory distress administer up to 2.5 mg of albuterol via nebulized aerosol.
- Consider the administration of 0.01 mg/kg epinephrine 1:1,000 IM for patients in severe respiratory distress (maximum dose of intramuscular epinephrine is 0.3 mg).
- For patients suspected of having croup, consider administration of nebulized saline for inhalation. For continued distress, **contact medical control** for consideration of the administration of 5 ml of epinephrine 1:1,000 via nebulizer.
- Patients who present with acute respiratory distress of sudden onset accompanied by fever, drooling, hoarseness, stridor, and sitting forward in the tripod position should be suspected of having a partial airway obstruction. Do nothing to upset the child. Perform critical assessments only and have parent administer blow-by oxygen. Transport immediately. If patient's airway becomes obstructed, in the setting of potential epiglottitis, attempt airway management primarily with BVM.
- Consider the administration of prednisone 1-2 mg/kg PO (up to 60 mg) in combination with Maalox® or other PO fluid for mild to moderate respiratory distress or 2 mg/kg methylprednisolone (Solu-Medrol®) IV (up to a max dose of 125 mg) for severe respiratory distress secondary to asthma.
- **Contact medical control** for consideration of administration of 25 mg/kg magnesium sulfate (up to a max dose of 2 g) IV infused over 10 minutes for continued severe respiratory distress.

For patients prescribed and taking levalbuterol (Xopenex®) via nebulizer, substitution of the patient's own medication in place of albuterol is acceptable.

Usual Xopenex doses: 0.31 mg/3 ml; 0.63 mg/3 ml; 1.25 mg/3 ml

PEDIATRIC ALTERED MENTAL STATUS

INDICATIONS: Incomprehensible speech, inappropriate verbal responses, inability to follow verbal commands, decreased responsiveness, or unresponsiveness.

- If blood sugar is less than 60 mg/dl (40 mg/dl for newly born) via glucometer, administer 0.5 g/kg dextrose IV at the following dilutions (max dose 25 g):
 - Dextrose 25% (D₂₅) at 2 ml/kg
 - Dextrose 10% (D₁₀) at 5 ml/kg for neonates
- Administer glucagon 1 mg IM, IN if unable to obtain intravenous access.
- Consider the administration of up to 0.1 mg/kg naloxone (Narcan®) IV, IN, or IM (maximum dose is 2 mg) for suspected drug overdose.

Contact medical control for consideration of sodium bicarbonate for tricyclic antidepressant overdose, glucagon for beta blocker overdose, and calcium chloride for calcium channel blocker overdose.

Consider nasal prong EtCO₂ monitoring along with pulse oximetry to insure adequate oxygenation and ventilation.

If a glucometer fails or is not immediately available, proceed with appropriate dosage of Dextrose or Glucagon.

PEDIATRIC SEIZURES (ACTIVE)

- If blood sugar is less than 60 mg/dl (40 mg/dl for newly born) via glucometer, administer 0.5 g/kg dextrose IV at the following dilutions (max dose 25 g):
 - Dextrose 25% (D₂₅) at 2 ml/kg
 - Dextrose 10% (D₁₀) at 5 ml/kg for neonates
- Administer glucagon 1 mg IM, IN if unable to obtain intravenous access.
- Administer 0.2 mg/kg midazolam (Versed®) up to a max dose of 5 mg IV, IN, or IM for continued seizure activity.

PEDIATRIC SHOCK and HYPOTENSION

INDICATIONS: *Clinical evidence of shock including: altered mental status, tachycardia, pale/cool/clammy skin, delayed capillary refill, and/or absence of radial/brachial pulses bilaterally.*

- For heart rate less than 60 bpm refer to bradycardia protocol.
- Infuse a 20 ml/kg (10 ml/kg for neonate) fluid bolus of normal saline.
- If signs of hypovolemic shock persist, boluses may be repeated at the same volume up to a maximum of 60 ml/kg (maximum of 30 ml/kg for neonate).
- **Contact medical control** for consideration of additional fluid bolus and/or a 5-20 mcg/kg/min dopamine infusion for continued hypotension not due to hypovolemia.

PEDIATRIC ALLERGIC REACTIONS

Moderate Allergic Reaction

INDICATIONS: *Allergic manifestations such as urticaria or history with allergic exposure without airway compromise or shock.*

- In patients over the age of two (2) years, consider the administration of 12.5 - 25 mg diphenhydramine (Benadryl®) PO without the necessity of intravenous access.
- Consider the administration of prednisone 1 - 2 mg/kg up to 60 mg PO in combination with Maalox® or other PO fluid.

Contact medical control for patients 2 years of age or under OR to give diphenhydramine [Benadryl®] IM.

Severe Allergic Reaction

INDICATIONS: *Generalized allergic manifestations such as urticaria or history of an allergic exposure with:*

1. *airway obstruction (partial or complete) **OR***
 2. *clinical evidence of shock including altered mental status, confusion, delayed capillary refill, and cool, clammy, or mottled skin.*
- Administer 0.01 mg/kg (0.1 ml/kg) epinephrine (1:10,000), (maximum 0.25 mg) IV over a one-minute interval. If unable to establish intravenous access, Administer 0.01 mg/kg epinephrine 1:1,000 (maximum 0.5 mg) IM.
 - If respiratory distress and clinical shock are still present and there is no evidence of supraventricular tachycardia, ventricular ectopy, or ventricular tachycardia: repeat 0.01 mg/kg epinephrine 1:10,000, (maximum 0.25 mg) IV over a one-minute interval.
 - Administer 1 mg/kg diphenhydramine (Benadryl®) IV, or IM (maximum dose is 50 mg).
 - Administer an intravenous bolus of 20 ml/kg (10 ml/kg for neonates) normal saline if shock persists. If signs of shock persist, bolus may be repeated at the same volume up to 2 additional times for a maximum of 60 ml/kg (30 ml/kg for neonates).
 - Administer 2 mg/kg methylprednisolone (Solu-Medrol®) IV up to a max dose of 125 mg.

PEDIATRIC BRADYCARDIA

INDICATIONS: *Heart rate less than 60 bpm with clinical evidence of shock including: altered mental status, pale/cool/clammy skin, delayed capillary refill, and/or absence of radial/brachial pulses bilaterally.*

- If severe cardiorespiratory compromise is present as evidenced by poor perfusion, hypotension, or clinical evidence of shock continues despite adequate ventilation and oxygenation, begin chest compressions if the heart rate remains less than 60 beats per minute.
- Administer 0.01 mg/kg epinephrine (1:10,000) IV. Repeat every 3-5 minutes.
- Administer 0.02 mg/kg atropine. Minimum dose is 0.1 mg IV. Maximum single dose is 0.5 mg IV. May be repeated once in 3-5 minutes.

PEDIATRIC TACHYCARDIA

INDICATIONS: *A wide complex tachycardia (QRS \geq 0.08 seconds) presumed to be ventricular tachycardia (VT), with a rate >180bpm in children more than 1 year old or >220bpm in children less than 1 year OR a narrow complex tachycardia (QRS \leq 0.08 seconds) other than sinus tachycardia, with a rate > 180bpm in children > 1 year old or > 220bpm in children less than 1. There should be no evidence of trauma, hypovolemia, fever or sepsis.*

For purposes of these Standing Orders, STABLE is defined as a patient with signs of adequate tissue perfusion, not in cardiac arrest, and not displaying the signs or symptoms of slow capillary refill, altered mental status, shock or pulmonary edema.

- Consider Vagal maneuvers (Valsalva, ice packs applied to face; Do not perform carotid massage)
- Administer fluid bolus of 20ml/kg (10 ml/kg for neonates) of normal saline (if no signs of pulmonary edema)
- Obtain 12 lead EKG on all patients
- **Contact medical control for the consideration of:**
 - If the rhythm is a wide complex tachycardia at a rate exceeding 180 in children > 1 year old or 220 in infants less than 1, administer 5mg/kg Amiodarone IV (up to a max of 150mg) infused over 10 minutes.
 - If the rhythm is a narrow complex tachycardia (SVT) at a rate exceeding 180 in children > 1 year old or 220 in infants less than 1, administer adenosine (Adenocard®) 0.1mg/kg IV max dose 6mg. May repeat at 0.2mg/kg IV max dose of 12mg.
- **If the patient exhibits signs of poor tissue perfusion, (delayed capillary refill, altered level of consciousness, shock or pulmonary edema) the following treatment modalities should be considered.**
 - Synchronized cardioversion: 0.5 to 1 J/kg if this is not effective increase to 2 J/kg. Cardioversion should only be attempted a total of twice.
 - Consider sedation but not to delay cardioversion, 0.2mg/kg etomidate (Amidate®) to a max dose of 20mg.

PEDIATRIC VENTRICULAR FIBRILLATION (VF) AND/OR
PULSELESS VENTRICULAR TACHYCARDIA (VT)

- In the absence of effective CPR on arrival and when response time is greater than four (4) minutes, perform 2 minutes of CPR prior to first defibrillation or intubation.
- Defibrillate using 2 joules/kg
- Perform 2 minutes of CPR between each defibrillation attempt.
- Defibrillate using 4 joules/kg every 2 minutes.
- Administer 0.01 mg/kg epinephrine (1:10,000) IV. Repeat every 3-5 minutes for the duration of resuscitation.
- Consider administration of 25 mg/kg magnesium sulfate IV if Torsade de Pointes is identified.
- Administer 5 mg/kg amiodarone (Cordarone[®]) bolus IV (maximum 300 mg per dose). May be repeated twice every ten minutes if VF/VT continues. Total of all doses not to exceed 450 mg.
- Follow each medication administration with a single shock of 4 joules/kg and 2 minutes of chest compressions
- Compressions will not be interrupted for longer than 10 seconds for intubation or other procedures. Intubation should be performed during pulse/rhythm check or during compressions and should be deferred until later in the resuscitation. Consider **early** use of rescue airway device for anticipated difficult intubation.

With return of spontaneous circulation:

- Administer 5 mg/kg amiodarone (Cordarone[®]) IV infused over 20 minutes (maximum 300 mg). Total of all doses not to exceed 450 mg.

Guidelines

- *Biphasic devices may use FDA approved/recommended energy settings*
- *Ventilations*
 - *Ventilate at 8-10 breaths per minute to decrease intrathoracic pressure*
 - *Patients should be bagged using a one-hand squeeze*
- *Compressions*
 - *CPR should be adjusted to provide for an EtCO₂ reading of greater than 10 mmHg, with greater than 20 mmHg preferred to improve chance of return of spontaneous circulation (ROSC)*
 - *Ensure proper depth and rate of compressions and minimize hands-off time*
 - *Frequently switch providers performing chest compressions to maintain peak performance*
 - *Ensure complete recoil of the chest wall prior to the next compression*
 - *Child/Infant compression frequency is 15:2*
 - *Neonate compression frequency is 3:1*
- *It is the consensus of the EMS medical directors that during transport to the hospital, lights and sirens are not medically indicated for cardiac arrest patients.*

PEDIATRIC ASYSTOLE / PULSELESS ELECTRICAL ACTIVITY (PEA)

- Administer 0.01 mg/kg epinephrine (1:10,000). Repeat epinephrine every 3-5 minutes.
- Administer IV bolus of up to 20 ml/kg (10 ml/kg for neonates) NSS, boluses may be repeated at the same volume up to a maximum of 60 ml/kg (30 ml/kg for neonates).
- Compressions will not be interrupted for longer than 10 seconds for intubation or other procedures. Intubation should be performed during pulse/rhythm check or during compressions and should be deferred until later in the resuscitation. Consider **early** use of rescue airway device for anticipated difficult intubation.

Guidelines

- *Ventilations*
 - *Ventilate at 8-10 breaths per minute to decrease intrathoracic pressure*
 - *Patients should be bagged using a one-hand squeeze*
- *Compressions*
 - *CPR should be adjusted to provide for an EtCO₂ reading of greater than 10 mmHg, with greater than 20 mmHg preferred to improve chance of return of spontaneous circulation (ROSC)*
 - *Ensure proper depth and rate of compressions and minimize hands-off time*
 - *Frequently switch providers performing chest compressions to maintain peak performance*
 - *Ensure complete recoil of the chest wall prior to the next compression*
- *It is the consensus of the EMS medical directors that during transport to the hospital, lights and sirens are not medically indicated for cardiac arrest patients.*

PEDIATRIC AND ADULT TRAUMA

INDICATIONS: *This Trauma Protocol applies to patients with any of the following field triage criteria:*

If any of the conditions in mechanism, obvious injury or vital signs are present, transport to a Trauma Center. Consider air medical transport.

Mechanism: *Patient ejection (partial or complete) from vehicle
Motorcycle crash > 20 mph or rider thrown.
Death of passenger in same vehicle compartment.
Falls > 20 feet (adult)
Falls > 10 feet (child) or 2-3 times the height of the child
Auto-pedestrian/ auto-bicycle injury-thrown, run over or with significant (>20 mph) impact
Vehicle telemetry consistent with high risk injury
High risk auto crash: inner intrusion > 12" occupant/>18" anywhere*

If NO for all elements in Mechanism, proceed to Obvious injury

Obvious injury:

*Penetrating injury to the torso, axilla, abdomen, head, neck, proximal extremities or groin.
Major burns, inhalation injury, or trauma with burns.
More than one proximal long bone fracture.
Pelvic fracture (suspected on clinical grounds).
Flail chest or other major chest injury
Limb paralysis
Major external hemorrhage.
Amputation above wrist or ankle
Crushed, degloved or mangled extremity
Open or depressed skull fracture
AVPU scale: does not respond to voice*

If NO for all elements in Obvious Injury, proceed to Vital Signs

Vital Signs:

*Adults: Glasgow Coma Scale < 14.
Systolic BP < 90 mmHg.
Respiratory rate < 10 or >29.
Heart rate < 50 or > 120 bpm.*

*Pediatrics: Pediatric Glasgow Coma Scale < 14.
Refer to the **Abnormal Vital Signs** section of the Broselow[™] tape.*

Patients with GCS ≤ 8 or exhibiting new onset paralysis or paresis: consider direct transport to a Trauma Center with neurosurgical capabilities.

If NO for all elements in Vital Signs, proceed to Extenuating Circumstances

Extenuating Circumstances: *(Not stand alone criteria for the initiation of trauma protocol or helicopter transport.)*

Pregnancy > 20 weeks

Renal dialysis

Age < 15 or > 55 years

Other significant medical conditions- discuss with medical control

Time Sensitive extremity injuries

Required by patient condition in the judgment of the prehospital provider

*Anticoagulation (Coumadin, Lovenox, heparin, Plavix) and bleeding disorders
(Factor deficiencies, ITP)*

Note: *If YES to extenuating circumstances, contact medical control and consider transport to closest trauma center.*

Note: *If NO to all above, routine transport.*

- **Contact medical control** for consideration of rapid sequence intubation (RSI) orders for patients if needed (applies only to agencies that offer RSI).
- If unable to intubate, maintain cricoid pressure and resume ventilations via BVM pending placement of an appropriate airway device.
- Consider needle chest decompression for suspected **TENSION** pneumothorax.
- Perform bilateral needle chest decompressions for **trauma arrest** patients (isolated penetrating head injuries excluded).
- For clinical shock, administer up to 20 ml/kg (10 ml/kg for neonates) normal saline intravenously.
- For suspected unstable pelvic fractures, apply pelvic compression device per manufacturer.
- Bandage burned areas using a dry clean dressings only. Cover the patient and provide for an appropriate warm environment to prevent heat loss.
- **In cases of severe hemorrhage:**
 - Apply direct pressure to the hemorrhaging wound
 - If direct pressure is not adequate to control hemorrhage, a provider may use a tourniquet for hemorrhage that is anatomically amenable to tourniquet application and note time of application.
 - For hemorrhage that cannot be controlled with above, apply approved hemostatic agent with direct pressure.
 - Patients with hemorrhagic shock should be taken to the closest trauma center.
- **Initiate transport to an appropriate trauma facility without delay.**
 - Head or spinal trauma patients with GCS ≤ 8 or exhibiting new onset paralysis or paresis; direct transport to a trauma center with neurosurgical capabilities is preferred.
 - Patients less than the age of 12, should be transported to a pediatric trauma center when patient condition, time and distance allow.

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- Burn patients without trauma should be evaluated at the nearest trauma center.
- Consider helicopter transport if ground transport to the appropriate hospital is expected to exceed 20 minutes.

Trauma scene times should be less than 10 minutes unless there are extenuating circumstances. Reasons for scene times over ten minutes should be documented on the chart. Appropriate reasons for prolonged trauma scene times include extrication, awaiting BLS, securing scene safety, presence of multiple victims, etc.

PEDIATRIC AND ADULT SMOKE INHALATION

INDICATIONS: *Patients who have been found unconscious or in cardiac arrest after being rescued from a smoke inhalation situation (i.e. soot-stained face and airways, history of confinement in smoke-filled environment). This standing order also applies to firefighters who collapse with sudden cardiac arrest or unconsciousness after being involved with interior structural firefighting operations.*

- Consider any decontamination to render the patient safe for treatment.
- Initiate standard resuscitation procedures:
 - Assess and manage the airway appropriately.
 - Ensure adequate ventilation and oxygenation.
 - Provide circulatory support (treat for shock, initiate CPR) as required.
- Determine pulse co-oximetry (if available).
- If available, perform Point of Care (POC) serum lactate testing
 - Lactate ≥ 10 mmol/l in the absence of severe burns or hypotension may suggest cyanide toxicity
- Assess and treat other causes of altered mental status (i.e hypoglycemia, narcotic overdose).
- If patient remains unconscious or in cardiac arrest, consider administration of 5 g (2.5 g for children ages 3 to 12 years, and 1.25 g for children 3 years of age and younger) hydroxocobalamin (Cyanokit®) over 15 minutes if available
 - Prior to administering hydroxocobalamin:
 - Draw venous blood sample
 - Estimate body surface area burn percentage
- Contact medical control for the consideration of direct transport to a hyperbaric center with emergent hyperbaric capabilities.

Services who stock hydroxocobalamin are encouraged to carry it in a manner that enables the drug's deployment to the scene of working structure fires with patients and incidents with extensive interior firefighting operations (for firefighter rehab).

PEDIATRIC AND ADULT POST RESUSCITATION CARE WITH INDUCED HYPOTHERMIA

INDICATIONS: *Return of Spontaneous Circulation (ROSC) in an intubated (advanced airway rescue device acceptable) cardiac arrest patient. If at any time during this protocol the patient has a loss of spontaneous circulation, discontinue cooling and treat with appropriate standing order.*

- **Exclusions:**
 - Primary traumatic arrest
 - Arrest as the result of medical or traumatic hemorrhage
 - Purposeful response to painful stimuli
- Maintain a MAP of 90-100 mmHg using a 10-20 mcg/kg/min Dopamine infusion.
- Perform and interpret a 12 lead ECG.
- Conduct a neurological assessment:
 - Assess pupils (size, reactivity, equality)
 - Motor response to pain
- **Implement induced hypothermia**
 - **Contact medical control** for implementation of hypothermia on patients under **16** years of age or those that have an obviously gravid uterus.
 - Patients must be transported to an induced hypothermia capable facility with preference given to a facility that can also perform PCI.
 - Expose patient and apply ice packs to axilla, groin and neck.
 - For patients with visible shivering:
 - administer 0.1mg/kg of vecuronium IV with a maximum dose of 10 mg if airway monitoring indicates adequate oxygenation and ventilation.
 - administer up to 5 mg midazolam (Versed) may repeat in 10 minutes for a maximum dose of 10mg.
 - Administer intravenous bolus of cold normal saline 30 ml/kg IV with a maximum of 2 liters.

Guidelines

- *Patients develop metabolic alkalosis with cooling, do not hyperventilate*
- *It is important to report the neurological assessment to the receiving facility*
- *Cold saline should be stored at a temperature of 4° Celsius (approximately 40°Fahrenheit).*

SELECTIVE SPINAL MOTION RESTRICTION

Apply this guideline to all patients involved in known or suspected blunt trauma.

Implement spinal motion restriction in the following circumstances:

- Significant multiple system trauma.
 - Severe head or face trauma.
 - If altered mental status (including drugs, alcohol and trauma) and:
 - No history available
 - Found in setting of possible trauma (e.g., lying at the bottom of stairs or in street);
or
 - Near drowning with a history or probability of diving.
 - Loss of consciousness after trauma.
 - Spinal pain or tenderness, including any neck pain with a history of trauma.
 - Numbness or weakness in any extremity after trauma
 - Patient with significantly painful distracting injury.
-

Modifiers:

High risk (should be immobilized):

- *Age > 64 years*
- *Dangerous mechanism (fall > 5 stairs, axial load, high speed MVC with ejection and / or rollover)*
- *Motorized recreation vehicles*
- *Bicycle collision*

Low Risk (may be cleared):

- *Simple low speed rear-end MVC without being pushed into oncoming traffic, without rollover, without being struck by a large vehicle or high speed vehicle*
- *Ambulatory at any time*
- *Penetrating trauma to the extremities or core (below the clavicles) without neurologic deficit*

PATIENT RESTRAINT

- Patient care remains the primary responsibility of the EMS provider. The method of restraint shall not restrict the adequate monitoring of vital signs, ability to protect the patient's airway, compromise peripheral neurovascular status or otherwise prevent appropriate and necessary therapeutic measures. It is recognized that evaluation of many patient parameters requires patient cooperation and thus may be difficult or impossible.
- Soft restraints are to be used only when necessary in situations where the patient is potentially violent and may be of danger to themselves or others. Patients who are clinically competent retain a right to refuse transport. EMS providers must remember that aggressive violent behavior may be a symptom of medical conditions such as but not limited to:
 - Head trauma
 - Alcohol/drug related problems
 - Metabolic disorders (i.e., hypoglycemia, hypoxia, etc.)
 - Psychiatric/stress related disorders
- All restraints should have the ability to be quickly released, if necessary in an emergency.
- It is medically acceptable to have a police officer follow a restrained patient's ambulance to the hospital in their police vehicle, as long as they maintain a position and contact with the transporting ambulance that will allow the officer to quickly release any restraining device that requires a key or special releasing device that they have applied in the event of a sudden deterioration in a restrained patient's condition.
- This policy is not intended to negate the need for law enforcement personnel to use appropriate restraint equipment to establish scene control or allow safe transport of patients who are in the custody of law enforcement.
- Patients should be transported in the supine position to ensure adequate respiratory and circulatory monitoring and management.
- The prone position should be a position of last resort and rarely used. This position carries a higher risk of patient injury or death.
- All restrained patients should be placed on a stretcher with adequate foam padding particularly underneath the head. Extremity restraints should be secured to the stationary portion of the stretcher frame.
- Stretcher straps should still be placed on all patients as these are analogous to seatbelts during transport.
- Restraints that use multiple knots or that may restrict chest wall motion are unacceptable.
- Restrained extremities should be monitored for color, sensory and motor function, pulse quality, and capillary refill at the time of application and frequently thereafter. The patient's respiratory status, pulse oximetry, or waveform capnography should be monitored during transport.
- After addressing and/or treating medical causes of aggressive or violent behavior, Consider the administration of up to 2.5-5 mg (use lower dose for elderly) haloperidol (Haldol®) IM/IV for sedation and/or up to 2.5-5 mg (use lower dose for elderly) midazolam (Versed®) IV/IM/IN as a chemical restraint.

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- Restraint documentation on the EMS report shall include:
 - Reason for restraint
 - Agency responsible for restraint application (i.e., EMS, Police)
 - Documentation of serial cardio-respiratory status and peripheral neurovascular status
- Medical control must be contacted if a patient is deemed too violent or uncooperative to be safely transported using the restraint methods and devices permitted by their prehospital protocols.

This policy is not intended for the interfacility transport of medically cleared involuntarily committed psychiatric patients.

PEDIATRIC AND ADULT AIRWAY MANAGEMENT

INDICATIONS: *Respiratory failure, inadequate ventilatory effort with minimal air exchange, severe dyspnea with an increased or decreased respiratory rate, retractions, difficulty speaking, extreme agitation, anxiousness, absent respirations, altered mental status, or situations where airway protective reflexes are lost (loss of gag reflex). Central cyanosis may be noted.*

- Insert appropriately sized basic airway adjunct.
- Suction as needed throughout intubation procedure.
- Assess the airway using the LEMONS and BONES mnemonics.
- Perform endotracheal intubation and ventilate with 100% oxygen.
- **Contact medical control** for consideration of implementation of Rapid Sequence Intubation (RSI) for patients who require urgent or emergent endotracheal intubation, but show evidence of incomplete relaxation or trismus, and for patients who demonstrate a high probability of airway compromise during transport.
- For systems not utilizing RSI, **contact medical control** for consideration of administration of up to 0.4 mg/kg etomidate (Amidate®) IV as needed prior to intubation.

RSI ABSOLUTE CONTRAINDICATIONS:

- Any patient where it is anticipated that they cannot be effectively ventilated with a bag valve-mask after paralysis.
- Entrapped patients with inadequate access to the patient and airway.
- Patients who are at risk for hyperkalemia
- Personal or family history of malignant hyperthermia
- Degenerative or dystrophic neuromuscular disease (Amyotrophic lateral sclerosis & Guillian-Barre disease)

RSI RELATIVE CONTRAINDICATIONS:

- Severe trauma to the mouth, upper, or lower airways
- Stridor or potential obstructed airway
- Morbidly obese patient
- Small mouth, short neck, or large tongue
- Penetrating eye injuries
- Renal failure
- No rescue airway (e.g. Pediatric patients)
- Children with special health care needs (motor dysfunction)

• **RSI PREPARATION:**

- Two certified ALS providers, one with credentials for RSI must be present. At least one must be a Delaware Certified Paramedic.
- Pre-oxygenate the patient with 100% oxygen prior to the RSI process (NRB mask or BVM).
- Assess for contraindications and for difficult airway anatomy. Rate the patient's neurological status (Glasgow Coma Scale).
- Apply and continuously monitor ECG and SpO₂ monitoring.
- Ensure functioning IV. (Two functioning IV's recommended.)
- Prepare equipment including,
 - Intubation gear
 - Suctioning gear (running)
 - Thomas ETT holder
 - Capnography device
 - Approved rescue airway devices (e.g. Combitube, LMA and surgical cricothyrotomy devices)
- Calculate drug dosages and prepare all medications (refer to dosage table).

• **RSI PROCESS:**

- Position patient properly with use of in-line stabilization for trauma patients.
- Monitor SpO₂ continuously.
- Pretreatment medications (lidocaine and/or atropine) should be administered as soon as determined to be indicated.
 - For suspected intracranial insult, administer 1.5 mg/kg lidocaine IV.
 - For all patients less than or equal to 1 years of age, administer 0.02 mg/kg atropine IV (minimum 0.1 mg).
- Protect the airway by applying cricothyroid pressure, not releasing until the endotracheal tube placement is confirmed.
- Administer 20 mg etomidate (Amidate®) IV. (0.3 mg/kg etomidate IV for pediatric patients with a maximum dose of 20 mg).
- Administer 2.0 mg/kg (maximum dose 200 mg) of Succinylcholine rapid IV push.
- Make no more than 3 attempts to intubate the patient (no more than 2 attempts per paramedic).
- Confirm placement and secure the endotracheal tube.

POST INTUBATION MANAGEMENT:

- Verify proper endotracheal tube placement and **document** via the following methods:
 - Visualization of tube passing through the vocal cords or the substitution of a whistle device (e.g. BAAM®) for nasotracheal intubation.
 - Capnography with waveform reading. Every effort should be made to continuously monitor waveform on intubated patients throughout the duration of the transport. A

printout or event marker documenting the capnography with waveform should be obtained:

- At time of tube placement
 - At any time of patient movement or transfer to another unit.
 - At time of transfer to receiving facility's stretcher
- Visualization of the chest rising and falling with ventilations.
- Clearing of the ET tube with lung inflation and misting of the tube with lung deflation.
- SaO₂ reading.
- Presence of bilateral breath sounds and absence of air sounds over the epigastrium.
- A printout of the **trend report** with the patient's heart rate, pulse oximetry and capnography readings will be presented to the receiving physician and copied for the agency's EMS medical director, regardless of intubation success.
- Consider the administration of up to 5 mg midazolam (Versed®) (0.1 mg/kg midazolam for patients under the age of 12 years) IV for continued sedation unless there is a systolic blood pressure less than 100 mmHg or as appropriate per Broselow tape for pediatric patients. **Contact medical control** for consideration of administration of additional doses of midazolam.
- Rate the patient's neurological status (Glasgow Coma Scale). For continued paralysis of the intubated patient, consider administration of 0.1 mg/kg vecuronium for anticipated prolonged transport time greater than 10 minutes or for combative patients. Vecuronium may be repeated once if the patient exhibits any signs of cessation of paralysis.
- Consider administration of up to 100 mcg Fentanyl (2 mcg/kg Fentanyl for patients under the age of 12 years up to a max dose of 50 mcg) IV/IM/IN .
- Consider the insertion of a naso/orogastric tube for gastric distention for intubated patients.
- **FAILED INTUBATION**
- If unable to intubate but can ventilate, maintain cricoid pressure and resume ventilations via BVM pending insertion of an approved rescue airway device.
- Insert an approved rescue airway device.
- Confirm placement and secure the rescue airway device.
 - Apply capnography and provide continual monitoring.
 - Consider sedation with up to 5 mg of midazolam (Versed®).
 - With successful Combitube® placement and with adequate ventilation and oxygenation, consider administration of 0.1 mg/kg vecuronium for anticipated prolonged transport time greater than 10 minutes or for combative patients. Vecuronium (in combination with up to 5 mg of midazolam (Versed®)) may be repeated once if the patient exhibits any signs of cessation of paralysis.

- **FAILED AIRWAY**

- If unable to intubate and cannot ventilate, perform a surgical cricothyrotomy (greater or equal to 8 years of age) or needle cricothyrotomy (less than the age of 8 years).

- **VENTILATOR MANAGEMENT** (device dependant):

- Tidal Volume should be set to 6-8 ml/kg of ideal body weight (maximum 650 ml)
- Rate should be set:
 - 8-10 for cardiac arrest
 - To titrate as close to 35-45 mmHg via digital capnography for perfusing patients
 - To titrate as close to 30-35 mmHg via digital capnography for patients with a head injury and signs of impending herniation
- FiO₂ should be set to:
 - 100% O₂ for cardiac arrest
 - Titrate to maintain SpO₂ of at least 95% for perfusing patients

*Oral endotracheal intubation is the preferred route of intubation. If unable to perform oral intubation, nasotracheal intubation should be attempted using an endotracheal tube with a **directional control** tip along with a whistle device (e.g. BAAM®).*

Capnography with waveform should be obtained and printed upon placement of the endotracheal tube, upon any movement of the patient (i.e. transfer to the stretcher or ambulance), and upon transfer of patient care to the receiving facility.

**The use of transport ventilators may be performed by agencies approved by the Office of Emergency Medical Services.*

QA/QI Parameters: 2 attempts per paramedic; 3 attempts per patient; attempt is passage of the laryngoscope blade past the patient's lips; greater than the above attempts requires medical control approval and/or variance report;

QA/QI Screen: at least three (3) endotracheal attempts per paramedic per year; at least 80% success rate; review of intubation trending data; agency EMS medical director determines if paramedic performance requires remediation; plan of remediation determined by EMS medical director in consultation with the paramedic's administration.

PEDIATRIC AND ADULT PAIN MANAGEMENT

INDICATIONS: *Moderate to severe pain as assessed by physical presentation and age appropriate pain scale.*

CONTRAINDICATIONS: *Systolic blood pressure less than 100 mmHg (90 + (2x age in years) mmHg in the pediatric patient).*

ADULT PATIENTS:

- For moderate to severe pain, consider administration of 50 - 100 mcg Fentanyl IV/IM/IN.
- After five (5) minutes and with continued moderate to severe pain, administer 50 - 100 mcg Fentanyl IV/IM/IN.
- **Contact medical control** for additional doses of Fentanyl.

PEDIATRIC PATIENTS:

- For moderate to severe pain, consider administration of 2 mcg/kg Fentanyl IV/IM/IN up to a max dose of 50 mcg.
- For continued moderate to severe pain, may administration of an additional 2 mcg/kg Fentanyl IV/IM/IN to a max dose of 50 mcg in five (5) minutes.
- **Contact medical control** for additional doses of Fentanyl.

PREHOSPITAL FIBRINOLYTIC CHECKLIST

Inclusion Criteria – Cardiac: (1-3 or #4 must be present – check as applicable)

- _____ **Ischemic discomfort at rest for > 30 minutes.**
- _____ **Chest pain that has persisted for < 6 hours from the onset of symptoms.**
- _____ **ST elevation > 1mm in 2 contiguous limb leads (I, II, III, AVR, AVL, AVF) or**
- _____ **ST elevation > 2mm in 2 contiguous precordial leads.**
- OR
- _____ **Ventricular fibrillation.**

Inclusion Criteria – Stroke:

- _____ **Onset of signs and symptoms consistent with stroke < 4.5 hours prior.**

Absolute Contraindications: (check as applicable)

- _____ **Previous hemorrhagic stroke at any time; other strokes or cerebral vascular events within past year.**
- _____ **Known intracranial neoplasm.**
- _____ **Active internal bleeding (except menses).**
- _____ **Suspected aortic dissection.**

Relative Contraindications: (Check as applicable)

- _____ **Severe uncontrolled hypertension at presentation with BP of >180/110 or a history of chronic severe hypertension.**
- _____ **Other intracerebral pathology.**
- _____ **Current use of anticoagulants, known bleeding disorders.**
- _____ **Recent trauma (2-4 weeks), including head trauma.**
- _____ **Prolonged (>10 minutes) and potentially traumatic CPR.**
- _____ **Major Surgery (<3 weeks prior).**

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- _____ **Non-compressive punctures (including current use of Hickman catheter, PIC Line or subclavian line and/or one recent removed).**
- _____ **Recent (2-4 week) history of internal bleeding or active peptic ulcer.**
- _____ **History of streptokinase exposure within 2 years or a prior allergic reaction to streptokinase.**
- _____ **Pregnancy.**

CINCINNATI PREHOSPITAL STROKE SCALE

Facial Droop **Normal: Both sides of face move equally**
Abnormal: One side of face does not move at all

Pronator Drift **Normal: Both arms move equally or not at all**
Abnormal: One arm drifts compared to the other

Speech **Normal: Patient uses correct words with no slurring**
Abnormal: Slurred or inappropriate words or mute

MANDATORY ALS EQUIPMENT INVENTORY

<u>ALS Equipment</u>	<u>Minimum</u>	<u>Intubation Equipment</u>	<u>Minimum</u>
ALS Radio/cell phone for base station communication	1	Nasopharyngeal airways	2
EKG monitor/defibrillator w/ 12 lead capability (adult and pediatric) W/ trend capability for HR, PO & EtCO2	1	Oropharyngeal airways (0-6)	1 set
Pulse Oximeter (adult and pediatric)	1	Endotracheal tubes (2.5,3,3.5,4,5,6,7,8,9)	2 ea.
Capnography - electronic with waveform capable of ET and nasal CO2 determinations	1ea peds and adult	OEMS Approved rescue airway devices adult and pediatric	1 ea.
CO-oximetry device (optional)	1	Miller Blades (0,1,2,3,4)	1 set
External pacemaker	1	Macintosh blades (1,2,3,4)	1 set
Spare batteries	2	Laryngoscope handle, adult	2
Spare EKG paper	1 roll	Laryngoscope handle, pediatric	2
Monitoring electrodes	8	Magill Forceps, adult	1pr
Monitoring cables	1 set	Magill forceps, pediatric	1pr
Defibrillation pads* (adult and pediatric)	2 pair	CPAP equipment	1 set
Pacemaker pads*	1 pair	Stylette, adult and pediatric	1
*Combi-pads maybe substituted	1 pair	Gastric tubes (8,10,12,14,16,18)	1 ea.
Glucometer	1	Pertrach or Quicktrach (4.0 mm)	1 kit
Pelvic compression device	1	Tape, adhesive or twill	1 roll
Broselow tape	1		
<u>Intravenous Equipment</u>			
Catheter, 24g	6	syringes, 20ml	4
Catheter, 22g		Bougie-flex guide intubation aid (optional)	2
Catheter, 20g	6	Water based lubricant	1 tube
Catheter, 18g	6	Spare laryngoscope bulb	2
Catheter, 16g	6	Spare laryngoscope batteries	2
Catheter, 14g	6		
I/O needles (w/depth control mechanism for pediatrics and adults)	2	<u>Medication Administration</u>	
Administration set, 10-15gtt/ml	4	1ml syringes w/ 25g needles	4
Administration set, 60 gtt/ml	4	3-10 ml syringes	8
Normal Saline solution, 1000ml	4	19g needles	4
Normal Saline solution, 500ml	2	21g needles (1.5 in)	4
Normal Saline solution, 100ml	1	Nebulizers	2
Blood draw device with appropriate blood tubes	2	MAD Device	1

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Intravenous Equipment (cont.)

Tourniquets	2
OEMS approved point of care testing device for cardiac markers, PT/INR and lactate (optional)	1
OEMS approved Hemostatic Agents (optional)	1
Site preparation material	2

Additional Equipment

Dental repair kit (TEMS Protocol)	1
Transport Ventilator (optional)	1
Mechanical chest compression device (optional)	
Thermometer (agency medical director approved)	
Asherman chest seals (optional)	1

MEDICATION LIST

Adenosine (Adenocard[®])
 Albuterol (Proventil[®], Ventolin[®])
 Amyl Nitrite*
 Amiodarone (Cordarone[®])
 Aspirin
 Atropine
 Bumetanide (Bumex[®]).....may be substituted for Lasix[®] (1 mg = 40 mg Lasix[®])
 Calcium chloride
 Calcium Gluconate*
 Dexamethasone(Decadron[®], Hexadrol[®]) may be substituted for Solu-medrol[®] (20 mg=125 mg Solu-medrol[®])
 Dextrose
 Diazepam*
 Diltazem (Cardizem[®])
 Diphenhydramine (Benadryl[®])
 Dopamine
 Epinephrine
 Etomidate (Amidate[®]).....80 mg per bag maximum
 Fentanyl (Sublimaze[®])
 Furosemide (Lasix[®])
 Glucagon
 Haloperidol (Haldol[®])
 Hydroxocobalamin (Cyanokit[®])
 Ipratropium (Atrovent[®])
 Labetalol (Trandate[®])
 Levalbuterol (Xopenex[®])..... may be substituted for albuterol (1 unit dose for 1)
 Lidocaine (Xylocaine[®])
 Magnesium Sulfate
 Maalox
 Methylprednisolone (Solu-Medrol[®])
 Midazolam (Versed[®])20 mg per bag maximum
 Morphine.....may be substituted for Fentanyl[®] (1 mg = 10 mcg)
 Naloxone (Narcan[®])
 Nitroglycerine
 Ondasteron (Zofran[®])
 Oxygen
 Prednisolone (Prednisone[®])

MEDICATION LIST (cont.)

Pralidoxamine*

Sodium bicarbonate

Sodium nitrite*

Sodium thiosulfate*

Succinylcholine (OEMS approved RSI agencies)

Vaccine and Immunization agents (authorized by the Director of Public Health, State EMS Director and State EMS Medical Director as stated in Paramedic Scope of Practice)

Vecuronium (OEMS approved agencies)

**Toxmedic protocols*